

Patent Claims

1-17. (cancelled)

18. (new) A drive train system comprising:

a driving engine;

a cooling system for cooling the driving engine, wherein the cooling system comprises a coolant circuit, a cooling device and a fan in thermal communication with the cooling device, wherein the fan is powered by the driving engine;

a clutch operably connected to the driving engine and the fan, wherein the controllable clutch is a hydrodynamic clutch comprising a primary wheel and a secondary wheel which define a working chamber;

a working fluid supply system in fluid communication with the working chamber for supplying a working fluid thereto; and

a clutch controller for controlling the hydrodynamic clutch.

19. (new) The drive train system of claim 18, further comprising: a regulating device having registering devices coupled to the regulating device for monitoring at least one current operating parameter of the driving engine, an operating state of the drive train system or a temperature in the coolant circuit, wherein the regulating device is connected to an adjusting device of the clutch for adjusting transmittable torque.

20. (new) The drive train system of claim 18, wherein the working fluid supply system is defined at least in part by the cooling system, wherein the clutch is downstream of a first circulating pump of the cooling system, wherein the clutch is positioned along a bypass to the coolant circuit and wherein the coolant

circuit further comprises a valve device for adjusting the clutch and controlling flow of working fluid into the working chamber of the hydrodynamic clutch.

21. (new) The drive train system of claim 20, wherein the valve device is positioned along the bypass.

22. (new) The drive train system of claim 20, wherein the valve device is a proportional valve.

23. (new) The drive train system of claim 20, further comprising:
a second circulating pump in the cooling circuit upstream of the first circulating pump, wherein the second circulating pump is coupled between the driving engine and the clutch by a speed/torque converter, and wherein the second circulating pump is adjustable.

24. (new) The drive train system of claim 23, wherein adjustability of the second circulating pump is controlled by a regulatable clutch that is in a driveline connection between the driving engine and the second circulating pump.

25. (new) The drive train system of claim 24, wherein the regulatable clutch is a hydrodynamic clutch.

26. (new) The drive train system of claim 18, wherein the working fluid supply system comprises a circuit that is coupled to the working chamber and has a filling controller for controlling a filling ratio in the working chamber.

27. (new) The drive train system of claim 26, wherein the circuit is a closed circuit having a pressure-tight seal with a pressure-tight closed working

fluid reservoir and the filling controller applies a static superimposed pressure on the working fluid in the working fluid reservoir.

28. (new) A method for optimizing a power supply of a cooling system for cooling at least one assembly of a drive train system comprising:

regulating a cooling capacity of the cooling system by regulating a speed of a fan that supplies a volume of air to the cooling system for absorbing heat, wherein regulation of the speed of the fan is done as a function of at least one current operating parameter of a driving engine of the drive train system, an operating state of the drive train system, a temperature in a cooling circuit of the cooling system, and a torque that is transmittable by way of a clutch disposed between the driving engine and a fan control.

29. (new) The method of claim 28, wherein the drive train system is used in a mobile application.

30. (new) The method of claim 28, wherein the operating state of the drive train system is defined at least in part by power output by the driving engine or actuation of a braking device.

31. (new) The method of claim 28, wherein regulation of the speed of the fan is done as a function of a change in temperature in the cooling circuit.

32. (new) The method of claim 31, wherein the change in temperature in the cooling circuit is estimated in temperature ranges.

33. (new) The method of claim 28, wherein regulation of the speed of the fan is done as a function of regulation of temperature in the coolant circuit to a constant temperature.